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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,561

05/03/2005

Hitoshi Mikoshiba

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EXAMINER

JACOBSON, MICHELE LYNN

ART UNIT

PAPER NUMBER

1709

MAIL DATE

DELIVERY MODE

09/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,561

Applicant(s)

MIKOSHIBA ET AL.

Examiner

Michele Jacobson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/3/05, 3/29/07, 9/7/07.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

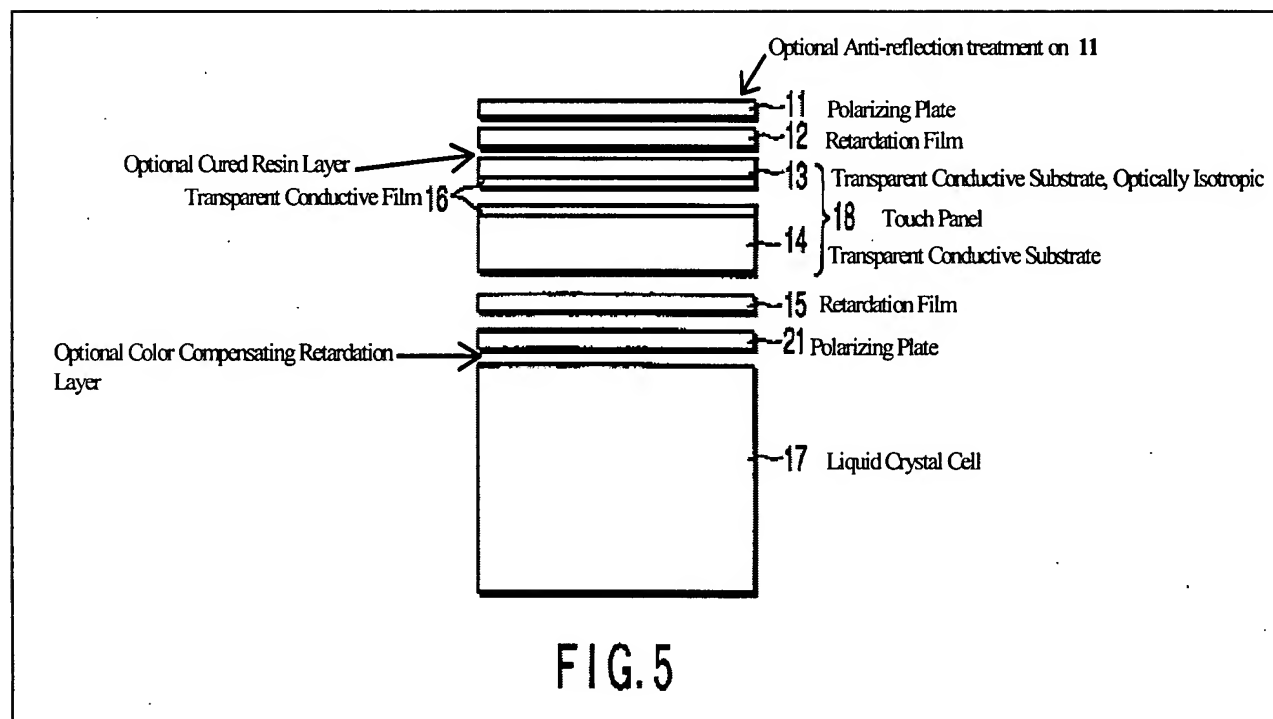
Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-11 and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al. U.S. Patent No. 6,411,344 (hereafter referred to as Fujii) in view of Yamaoka et al. U.S. Patent No. 6,025,958 (hereafter referred to as Yamaoka).

3. Fujii teaches a transparent touch panel device and liquid crystal display comprising in the following order according to Figure 5: a polarizing plate (11), a retardation film (12) having a photoelasticity in the range of $5 \times 10^{-12} \text{ Pa}^{-1}$ – $65 \times 10^{-12} \text{ Pa}^{-1}$ (Col. 2, line 50), an optically isotropic transparent conductive substrate (13) that can be laminated on 12 (Col. 8, lines 59-63), transparent conductive films facing one another (16), an optically isotropic transparent conductive substrate (14) that can be laminated on 15 (Col. 9, lines 4-8), a retardation film (15), a polarizing plate (21) and a liquid crystal cell (17). An optional additional retardation layer is recited to be disposed between layers 21 and 17 for the purpose of color compensation. (Col. 9, lines 54-61) A cured resin layer comprising a polymer or a polymer with fillers is also recited to be optionally disposed between retardation layer 12 and the transparent conductive layer



16. (Col. 7, lines 56- Col. 8, line 34) The purpose of adding the fillers to this layer is to prevent the undesirable generation of "Newton's rings caused by interference of light between the transparent electrodes". (Col. 8, lines 21-23) Optimizing the fillers is recited to be necessary since "filler addition imparts in some cases a garish impression to the displayed image, making it necessary to keep the clarity of the transmitted image at 80% or more by optimizing the filler shape, and the coating conditions of the coating agent." (Col. 8, lines 30-34) The first retardation film **12** is recited to be a quarter wave plate. (Col. 4, lines 58-59) The glass transition temperature of the polycarbonate polymer used to form the retardation film is recited to be 160° C and above. (Col. 10, lines 20-30) Example 1 of Fujii recites a polycarbonate retardation layer with a cured resin layer containing divinylbenzene series fillers disposed between the retardation layer and the transparent conductive layer. (Col. 11, lines 14-28) The photoelasticity of these layers was recited to be $62 \times 10^{-12} \text{ Pa}^{-1}$ and the haze was found to be 0.8%. (Col.

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11, lines 25 and 32-33) When these layers were incorporated into the touch panel of the invention the retardation measured in the vertical direction was found to be 2 nm.

(Col. 12, line 26)

4. Fujii is silent regarding disposing a light scattering layer on the retardation film layer (12) opposite the first transparent conductive layer (16) with a haze value between 0.2 and 1.4 % and a centerline average roughness between 0.005 and 0.04 μm . Fujii also does not recite utilizing a half wave plate or a polymer layer with a retardance of less than 30 nm disposed on the first retardation layer 12. Fujii is further silent regarding disposing an additional polarizing plate on the far side of the liquid crystal cell opposite the touch panel in the liquid crystal touch panel device.

5. Yamaoka teaches an LCD display device comprising a half wave and quarter wave plate produced by orienting high molecular weight films monoaxially, biaxially or in any other proper process. These films include polycarbonate-based films. (Col. 4, lines 38-47) The quarter wave plate of the invention is recited to be comprised of an anti-reflection layer and a glare protection layer provided on one or both sides thereof for the purpose of preventing surface reflection. (Col. 5, lines 63-66) "The glare protection layer may be formed by any proper method which allows the surface of the circular polarizing plate to scatter reflected light" (Col. 6, lines 3-5) This layer is recited to provide the surface with a fine unevenness and may be made from transparent resin containing particulate material having an average grain diameters from 0.5-20 μm . (Col. 6, lines 11-21)

6. The motivation to combine Fujii with Yamaoka would have been to reduce the reflection of extraneous light in the touch panel and to enhance the brightness of the LCD in the touch panel. (Yamaoka, Col. 7, lines 32-33, 38)

7. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined Fujii with the quarter and half wave plates and light scattering layer of Yamaoka in order to produce the invention as claimed in claims 1-11 and 14-19.

8. Although Yamaoka does not recite a haze value for the light scattering film, it would have been obvious to one of ordinary skill in the art to optimize the haze value for this film in order to prevent the detrimental effects that are recited by Fujii. (Claim 1)
Optimizing the haze value of the light scattering layer would also lead to optimization of the centerline average roughness as recited by applicant since this parameter is linked to the haze value of the layer. (Claim 14)

9. The limitations set forth in claims 1-9 are all met by a transparent conductive laminate comprised of a layers disposed in the following order: a light scattering layer, an isotropic polymer layer with retardance < 30 nm, a half wave plate, a quarter wave plate and a transparent conductive layer. The rearrangement of layers recited in claim 9 has no criticality since the polarization of the light exiting the laminate would be the same as the layers disposed the opposite way. In order to increase the rigidity of the laminate it would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed an additional unoriented polymer layer with a photoelasticity of less than 70×10^{-12} Pa⁻¹ and a retardance less than 30 nm on the

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quarter and half wave plate meeting the limitations set forth in claim 8. One of ordinary skill in the art would have recognized the need for such a low retardance so that the film would not cause unnecessary interference with the light passing through the quarter and half wave plates.

10. While Yamaoka does not recite a particle size of 100 nm or less for the particles disposed in the cured resin layer, it is the examiner's interpretation that the average grain diameter range recited by Yamaoka would include at least 1 particle of 100 nm or less diameter thus meeting the limitations set forth in claims 10 and 11. Furthermore, the motivation of preventing the undesirable generation of "Newton's rings caused by interference of light between the transparent electrodes" is shared by applicant and Fujii. As such, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the composition of particles in the cured resin layer.

11. The limitation of a polycarbonate resin for the retardance layer with a glass transition temperature greater than 170° C in claims 15 and 16 is recited by Fujii and would be an obvious feature of the combined invention of Fujii and Yamaoka.

12. Although Fujii and Yamaoka do not recite polarizing plates disposed opposite the touch panel portion of an LCD display device it is well known in the art to dispose a polarizing plate between the LCD and the light source. As such, the inventions as claimed in claims 17-19 are obvious in view of these references.

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13. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikoshiba et al. in view of Fujii et al. as applied above in further view of Yamaoka et al. as applied above.

14. Fujii and Yamaoka are silent regarding disposing an optical interference layer comprising cross linked polymer high and low refractive index layers between a retardation layer and the transparent conductive substrate of the touch panel.

15. Mikoshiba teaches transparent conductive laminate comprising layers in the following order: a particle containing cross linked polymer, a high refractive index layer, and low refractive index layer and a transparent conductive layer.

16. The motivation to combine Fujii and Yamaoka with Mikoshiba would have been that it was recognized at the time Mikoshiba's invention was made that there was a "new type touch panel having a structure in which a polarizer (or a polarizer and a retardation film) was laminated to the inputting side (user side) surface of the touch panel." The advantage of the structure being "to reduce the reflectance of extraneous light in the touch panel to not more than a half and to improve the contrast of the display in a state set to the touch panel." (Mikoshiba, Col. 7, lines 53-59)


17. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine Fujii and Yamaoka with Mikoshiba in order to produce the invention as claimed in claims 12 and 13.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michele Jacobson whose telephone number is (571) 272-8905. The examiner can normally be reached on Monday-Friday 7:30 AM-5 PM EST (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



D. LAWRENCE TABAZANO
PRIMARY EXAMINER

Michele L. Jacobson
Examiner
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